

Attorney's Docket: 2002DE444
Serial No.: 10/735,490
Art Unit 1714
Response to Office Action, Dated 12/28/2006

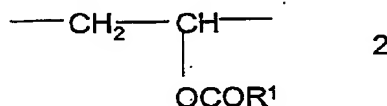
This listing of claims will replace all prior versions, and listings, of claims in the application:

1.(Currently Amended) A fuel oil comprising a proportion of middle distillate having a sulfur content of at most 350 ppm, [[and an]] a total aromatics content of at most 22% by weight of said middle distillate, and a combined poly- and di- aromatic content of less than 2.5% by weight of said middle distillate, and a proportion of at least one copolymer of ethylene and vinyl esters, said copolymer comprising comonomers

a) bivalent structural units derived from ethylene of the formula 1

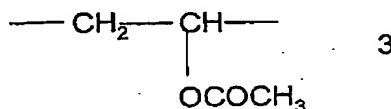


b) from 5 to 12 mol% of bivalent structural units of the formula 2



where R¹ is saturated, branched C₅-C₁₈-alkyl, and

c) from 4 to 13 mol% of bivalent structural units of the formula 3



wherein a sum of molar proportion of comonomers b) and c) is between 12 and 16 mol%, said copolymer having a molar ratio of comonomer b) to comonomer c) of between 0.4 and 2.0.

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2.(Previously Presented)) The fuel oil of claim 1, wherein the molar proportion of the comonomer b) is between 5 and 11 mol%.

3.(Previously Presented) The fuel oil of claim 1, wherein the molar proportion of comonomer c) is between 4.6 and 9 mol%.

4.(Previously Presented) The fuel oil of claim 1, wherein the comonomer b) is a vinyl ester of branched carboxylic acids having from 5 to 15 carbon atoms.

5.(Previously Presented) The fuel oil of claim 1, wherein the copolymer further comprises up to 5 mol% of a further comonomer selected from the group consisting of olefins having from 3 to 18 carbon atoms, esters of acrylic acid or methacrylic acid with C₁-C₁₈-alcohols, C₁-C₁₈-alkyl vinyl ethers, and mixtures thereof.

6.(Previously Presented) The fuel oil of claim 1, wherein the copolymer has a molecular weight (by GPC against poly(styrene)) of from 3000 to 15 000 g/mol.

7.(Previously Presented) The fuel oil of claim 1, wherein the copolymer has a degree of branching determined by means of NMR between 2 and 9 CH₃/100 CH₂ groups, not taking into account the methyl groups of the comonomers.

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8.(Previously Presented) The fuel oil of claim 1, wherein the copolymers have a melt viscosity at 140°C of from 20 to 10 000 mPas.

9.(Currently Amended) The fuel oil of claim 1, wherein the total aromatic content of the middle distillate is ~~has an aromatic content below~~ 18% by weight.

10.(Previously Presented) The fuel oil of claim 1, wherein the middle distillate has a 90-20% boiling range of less than 110°C.

11.(Previously Presented) The fuel oil of claim 1, wherein the middle distillate has a paraffin content by DSC of more than 3% by weight of precipitated paraffins at 10°C below the cloud point.

12.(Previously Presented) The fuel oil of claim 1, wherein the middle distillate has a density of less than 0.840 g/cm³.

13.(Previously Presented) The fuel oil of claim 1, wherein the middle distillate additionally comprises at least one further ethylene-vinyl ester copolymer.

14.(Previously Presented) The fuel oil of claim 1, wherein the middle distillate additionally comprises at least one polar nitrogen compound.

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15.(Previously Presented) The fuel oil of claim 1, wherein the middle distillate additionally comprises at least one alkylphenol-aldehyde resin.

16.(Previously Presented) The fuel oil of claim 1, wherein the middle distillate additionally comprises at least one comb polymer.

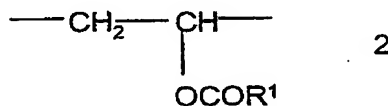
17.(Previously Presented) The fuel oil of claim 1, wherein the middle distillate additionally comprises at least one polyoxyalkylene derivative.

18.(Withdrawn) A copolymer of ethylene and vinyl esters comprising comonomers

a) bivalent structural units derived from ethylene of the formula 1

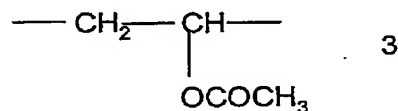


b) from 5 to 12 mol% of bivalent structural units of the formula 2



where R¹ is saturated, branched C₅-C₁₈-alkyl, and

c) from 4 to 13 mol% of bivalent structural units of the formula 3



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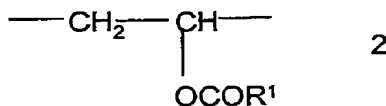
wherein a sum of molar proportions of structural units of the formulae 2 and 3 is between 12 and 16 mol%.

19.(Currently Amended) A method for improving the cold flow behavior of a middle distillate, said method comprising adding a copolymer of ethylene and vinyl esters to said middle distillate having a sulfur content of at most 350 ppm, [[and an]] a total aromatics content of at most 22% by weight of said middle distillate, and a combined poly- and di- aromatic content of less than 2.5% by weight of said middle distillate. [[of a]] the copolymer of ethylene and vinyl esters comprising comonomers

- a) bivalent structural units derived from ethylene of the formula 1

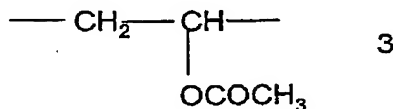


- b) from 5 to 12 mol% of bivalent structural units of the formula 2



where R¹ is saturated, branched C₅-C₁₈-alkyl, and

- c) from 4 to 13 mol% of bivalent structural units of the formula 3



wherein a sum of molar proportions of structural units of the formulae 2 and 3 is between 12 and 16 mol% and a molar ratio of comonomer b) to comonomer c) of of from 0.4 to 2.0.

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20.(Previously Presented) The method of claim 19, wherein the molar proportion of the comonomer b) is between 5 and 11 mol%.

21.(Previously Presented) The method of claim 19, wherein the molar proportion of comonomer c) is between 4.6 and 9 mol%.

22.(Previously Presented) The method of claim 19, wherein the comonomer b) is a vinyl ester of branched carboxylic acids having from 5 to 15 carbon atoms.

23.(Previously Presented) The method of claim 19, wherein the copolymer further comprises up to 5 mol% of a further comonomer selected from the group consisting of olefins having from 3 to 18 carbon atoms, esters of acrylic acid or methacrylic acid with C₁-C₁₈-alcohols, C₁-C₁₈-alkyl vinyl ethers, and mixtures thereof.

24.(Previously Presented) The method of claim 19, wherein the copolymer has a molecular weight (by GPC against poly(styrene)) of from 3000 to 15 000 g/mol.

25.(Previously Presented) The method of claim 19, wherein the copolymer has a degree of branching determined by means of NMR between 2 and 9 CH₃/100 CH₂ groups, not taking into account the methyl groups of the comonomers.

26.(Previously Presented) The method of claim 19, wherein the copolymer has a melt viscosity at 140°C of from 20 to 10 000 mPas.

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27.(Currently Amended) The fuel oil of claim 19, wherein the total aromatic content of the middle distillate is ~~has an aromatic content below~~ 18% by weight.

28.(Previously Presented) The method of claim 19, wherein the middle distillate has a 90-20% boiling range of less than 110°C.

29.(Previously Presented) The method of claim 19, wherein the middle distillate has a paraffin content by DSC of more than 3% by weight of precipitated paraffins at 10°C below the cloud point.

30.(Previously Presented) The method of claim 19, wherein the middle distillate has a density of less than 0.840 g/cm³.